



NSF AST Program and Budget Updates

AAAC Meeting

June 10, 2014

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Outline

- First Response to AAAC 2014 Recommendations
- NSF and AST Budgets
- Decadal Survey, Portfolio Review, and P5 Status
- Astronomy and Astrophysics Research Grants (AAG)



First Response to 2014 AAAC Recommendations



AAAC 2014 Recommendations to NSF

- Use newly drafted “Principles for Access to Large Astrophysics Projects and Facilities” in negotiating future agreements
 - In process, discussed at AAS Town Hall last week
- Should budget situation improve, make more aggressive progress on decadal survey priorities
 - Awaiting improvement
- Pursue divestments in most expedient possible manner to enable decadal survey progress
 - Expect to start environmental studies shortly
- Where possible, leverage divested facilities for community access
 - Many ongoing discussions, most in progress
- AAAC and agencies work together to clarify and quantify questions related to individual investigator grants and mid-scale programs
 - See later slides for first cut at some data

AAAC 2013: CAA-chartered O/IR Study

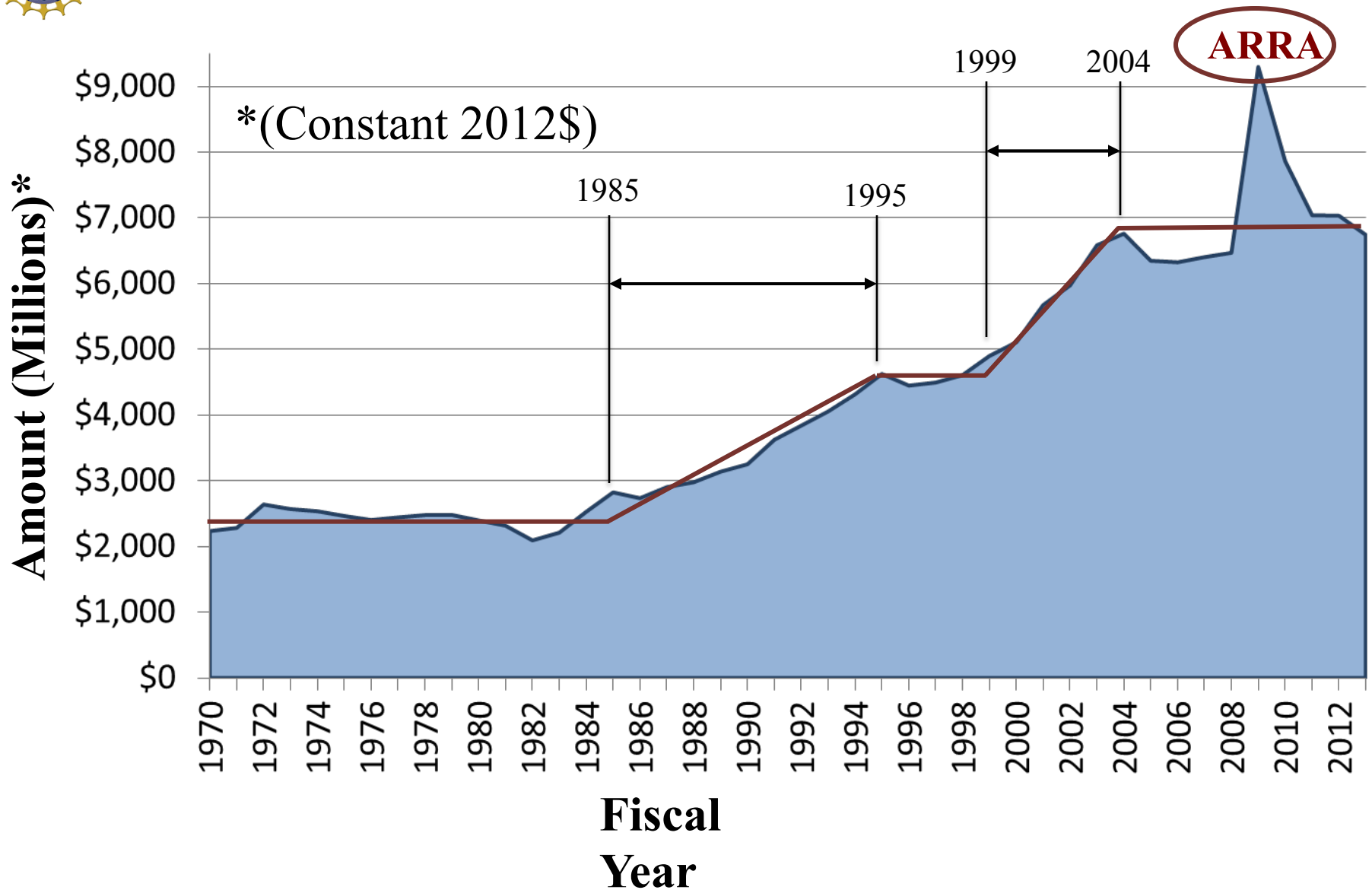
- Committee forming, chaired by D. Elmegreen
- Goal 1: Position the observational, instrumentation, data management, and support capabilities in U.S. O/IR astronomy to best address the science frontiers and science goals as identified in the decadal surveys “*New Worlds, New Horizons in Astronomy and Astrophysics*” and “*Vision and Voyages for Planetary Sciences in the Decade 2013-2022*” in the era of LSST as the primary new federal asset in the O/IR portfolio.
- Goal 2: Achieve the best science return from the NSF investment in night-time O/IR astronomy, including, but not limited to, the role of the O/IR system in delivering LSST-related science.



Budgets



NSF Funding History





NSF Appropriations, FY 2010-15

Budget, In \$M	FY10 Actual	FY11 Actual	FY12 Actual	FY13 Actual	FY14 Plan	FY15 Req.
NSF	6972	6913	7033	6902	7172	7255
R&RA	5615	5608	5689	5559	5809	5808
MREFC	166	125	197	196	200	201
MPS	1368	1312	1309	1249	1300	1296
AST	246	237	235	233	239	236
MREFC, In \$M	FY10 Actual	FY11 Actual	FY12 Actual	FY13 Actual	FY14 Plan	FY15 Req.
ALMA	42.76	13.92	2.50	0.51	0	0
DKIST	20.00	5.00	10.00	25.00	36.88	25.12
LSST	0	0	0	0	27.50	79.64



Decadal Survey, Portfolio Review, and P5 Status

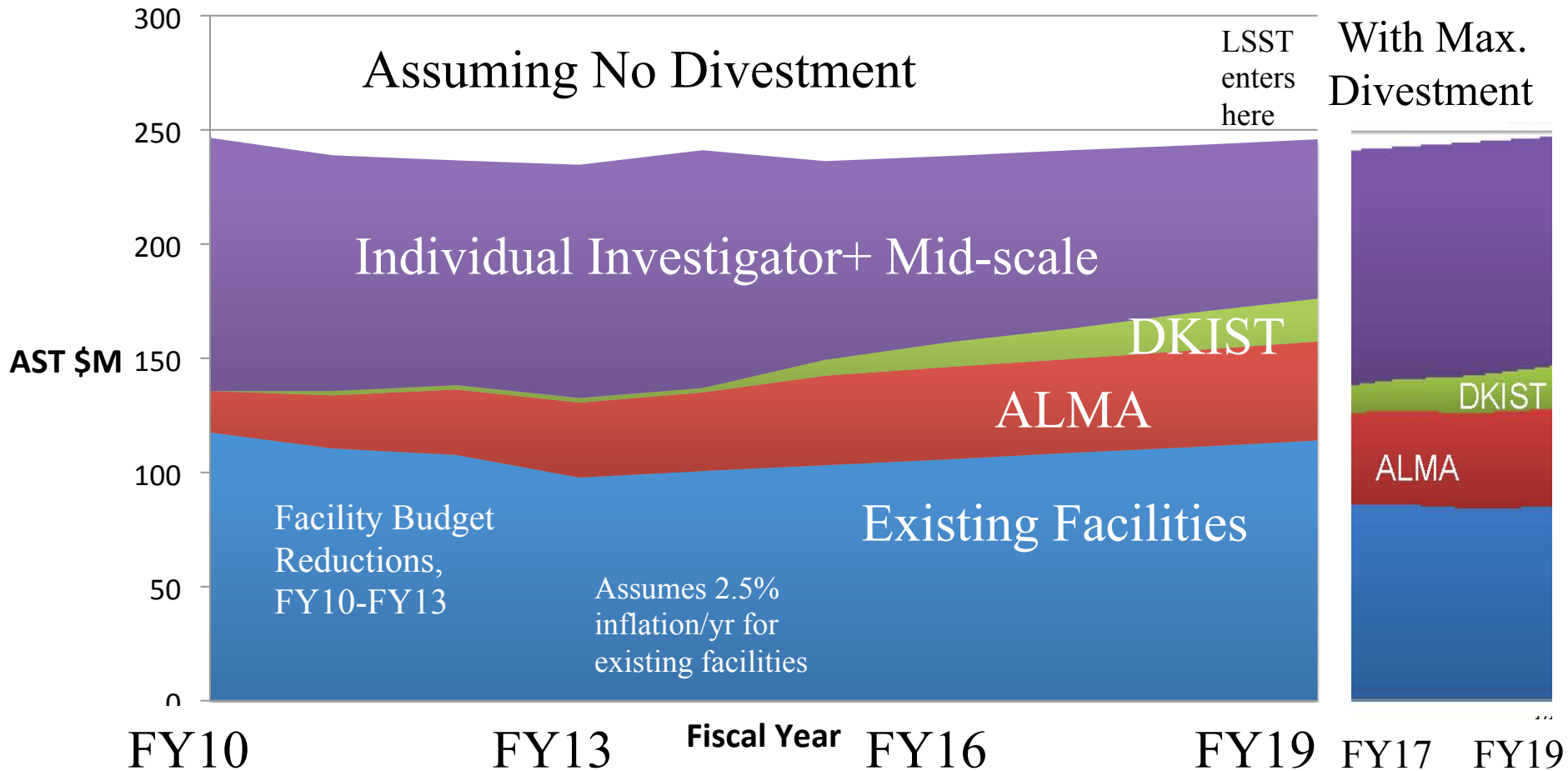


Decadal Survey (NWNH) Status

- LSST construction under NSF budget expected to begin in July
- Mid-Scale Innovations Program (MSIP) proposals under final evaluation
- NSF and community participating in TMT Board, Science Advisory Committee, via planning award
- Only Cerenkov Telescope Array (CTA) opportunity - MSIP
- Only CCAT opportunity - MSIP
- “Small” recommendations: TCAN (Theoretical and Computational Astrophysics Network) started with NASA, no funds available for other recommended increases



AST Portfolio Scenarios



AST budget assumption: FY15=Request, 1%/yr growth thereafter



Portfolio Review Status

- AST issued Dear Colleague Letter NSF 14-022 on December 20, 2013
 - Lays out future steps for all telescopes that were either recommended for divestment in the near term or for future consideration
 - NSF will begin environmental review of alternatives for a number of telescopes, while consideration of some others awaits specific external milestones
 - Expect outcome and preferred alternatives in FY 2015
- NSF is aggressively pursuing partnerships with other entities and federal agencies (e.g., DESI)



Partnership Guidelines

- AST and its facility managing organizations are aggressively exploring partnerships for facilities recommended for divestment
 - NSF requires its awardees to obey all relevant export control regulations regarding sensitive technologies and capabilities
 - However, it is important for both awardees and NSF to understand any boundary conditions as early as possible when conducting partnership discussions with either U.S. or international entities
 - Thus, NSF is working with OSTP and the community to establish recommended guidelines that can facilitate partnership discussions
 - Those guidelines also may be useful in applying the AAAC principles appropriately to future facilities



P5 Recommendations

- Strong support of LSST
- Dark Energy Spectroscopic Instrument (DESI) is in the higher budget scenario, last item “out” in the lower budget scenario
 - NSF actively working with DOE and NOAO on a strategy that would enable the Mayall 4m telescope to be made available for DESI
- US investment in CTA dependent on AST
 - AST expects to issue another MSIP solicitation in FY15-16 or FY16-17
 - CTA would be eligible to propose
- CMB: look forward to discussions with DOE



Astronomy and Astrophysics Research Grants (AAG)

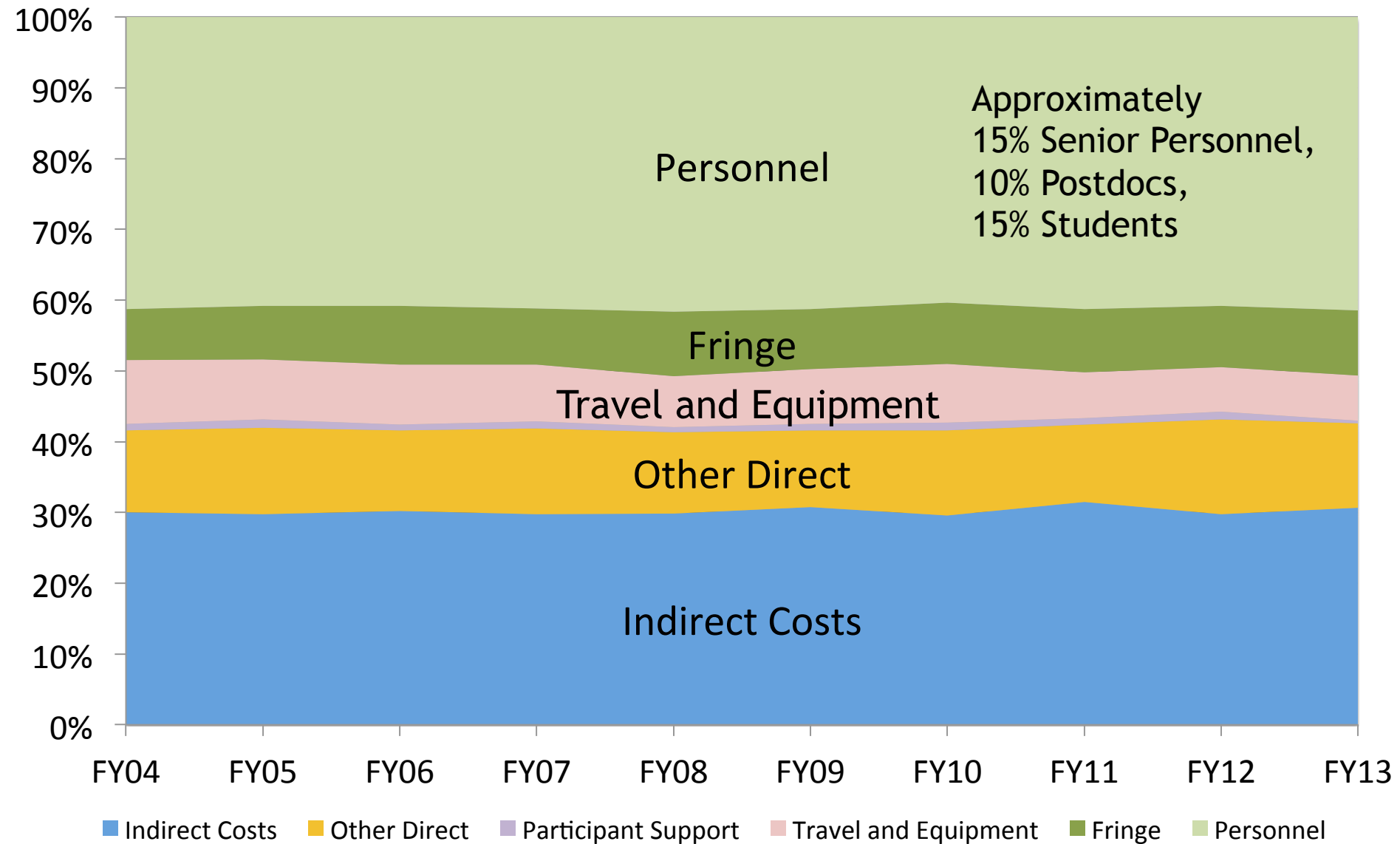


Grants Program Statistics

- Many questions are asked about various grants program statistics, impact of soft-money positions, money spent on students, multiple proposal submissions, gender balance, etc.
 - Data are important for assessing possible future approaches related to community health and demographics
 - AAAC recommended clarification and quantification of some of these issues, which also are of great interest to AAS
- Subsequent slides show some of our first looks at the data over last 10-25 years



AAG Global Budget Breakdown





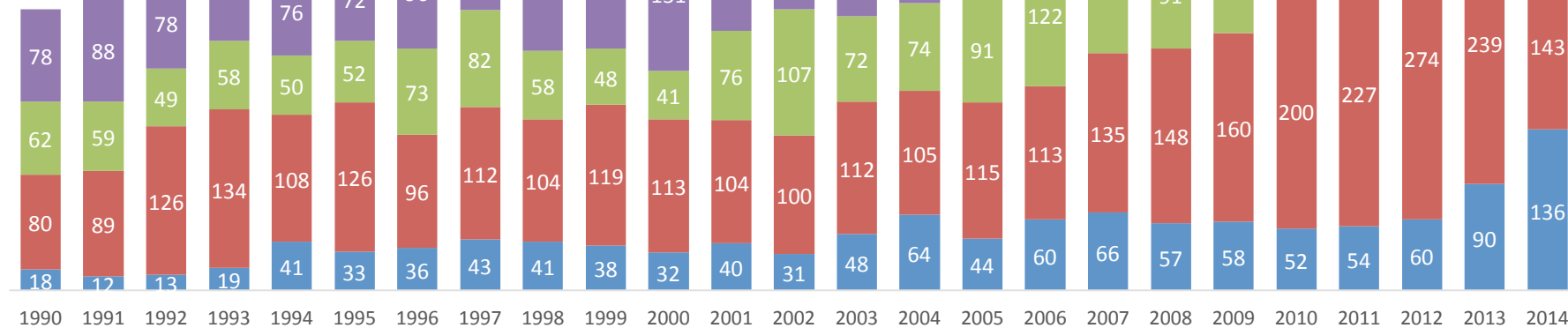
Proposals in AAG

732

PLA SAA
GAL EXC

238

379



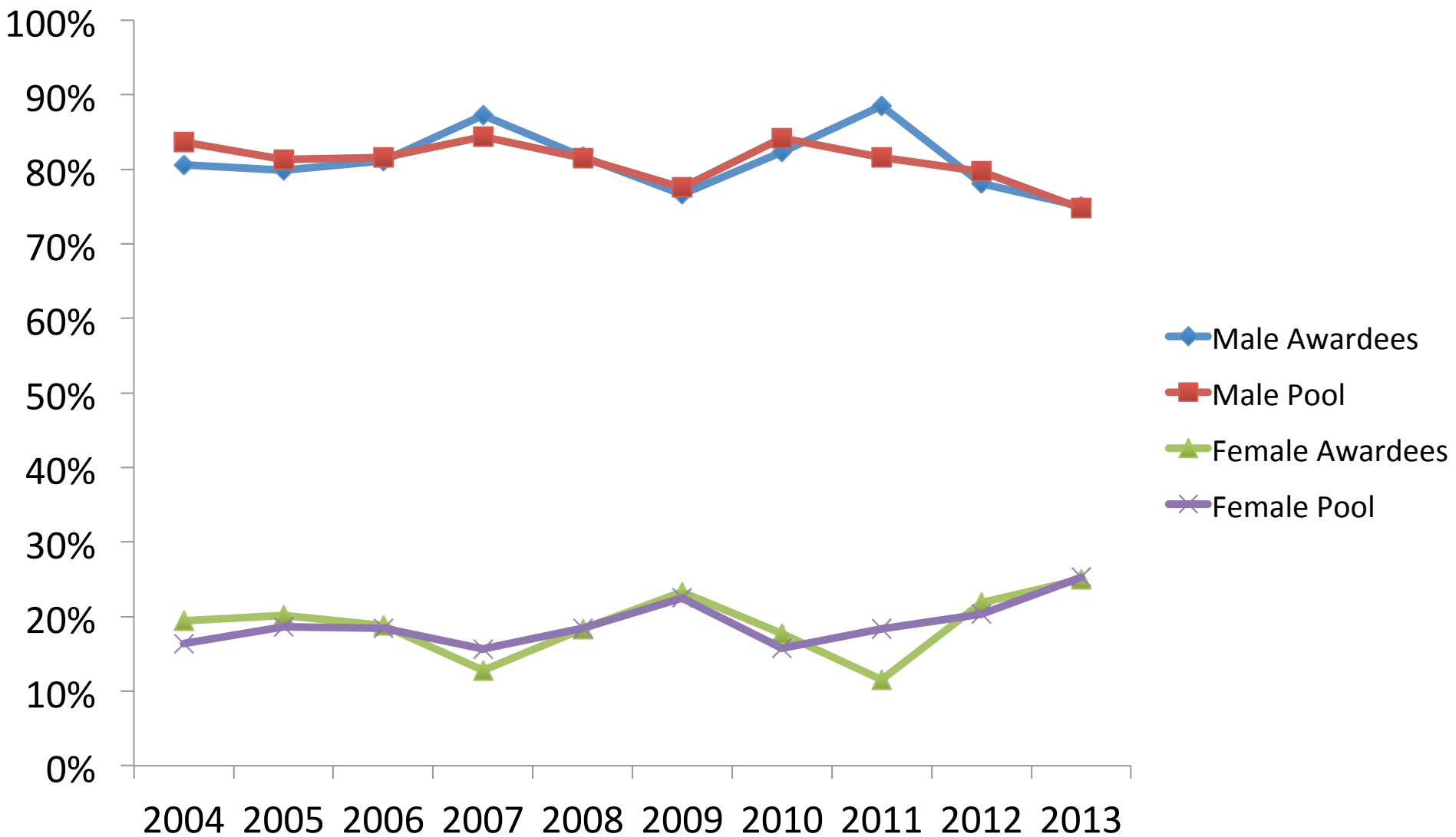
1990

2004

2014

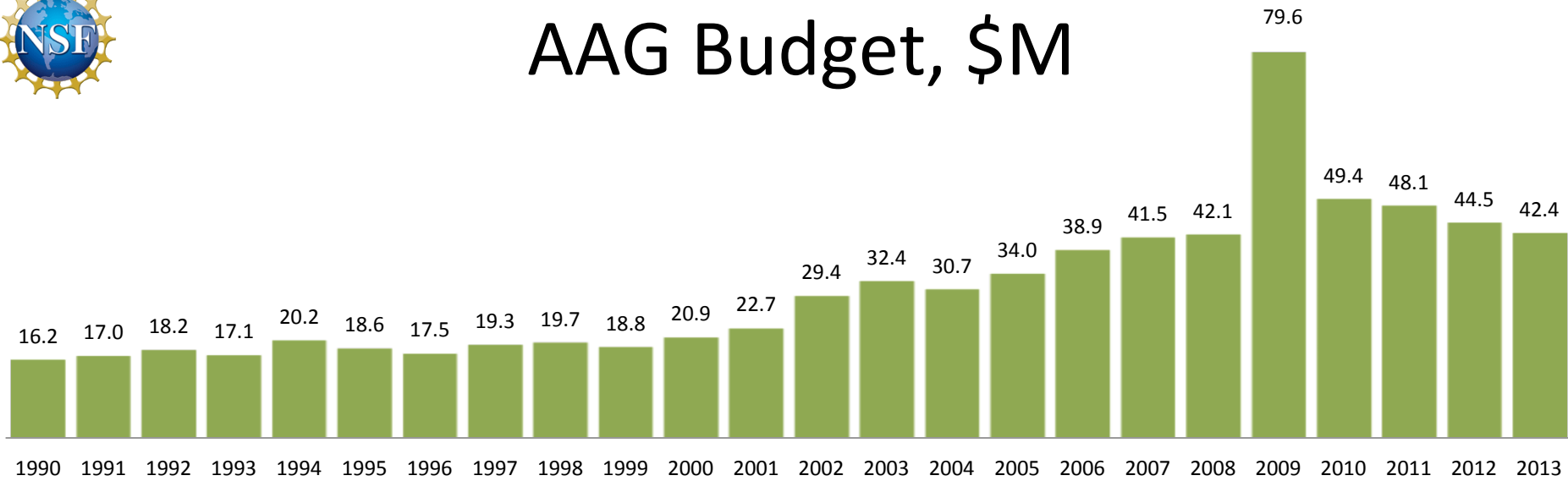


Submissions and Awards by Gender

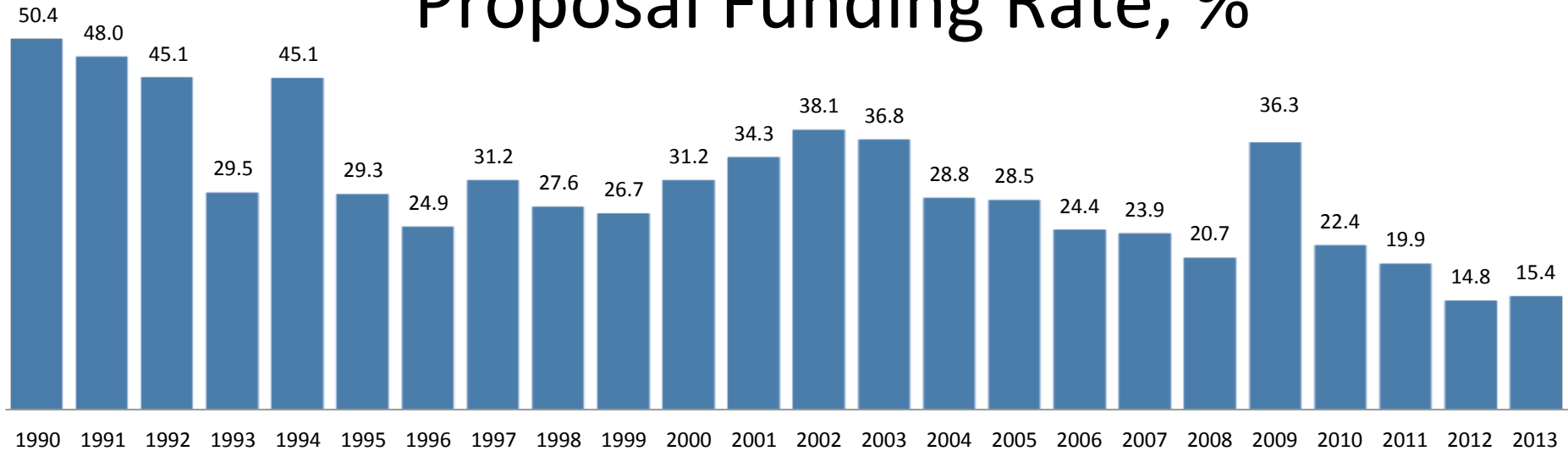




AAG Budget, \$M

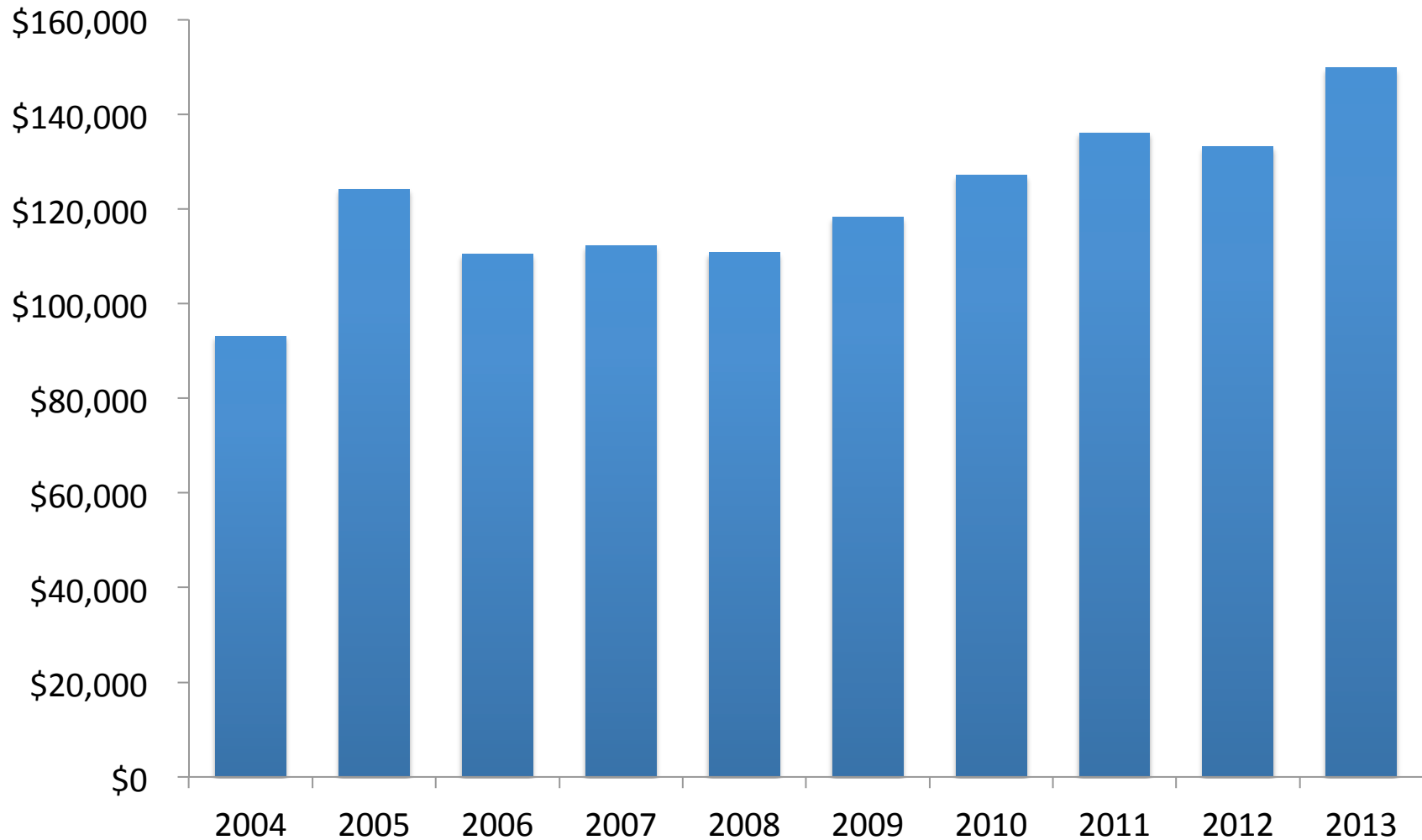


Proposal Funding Rate, %





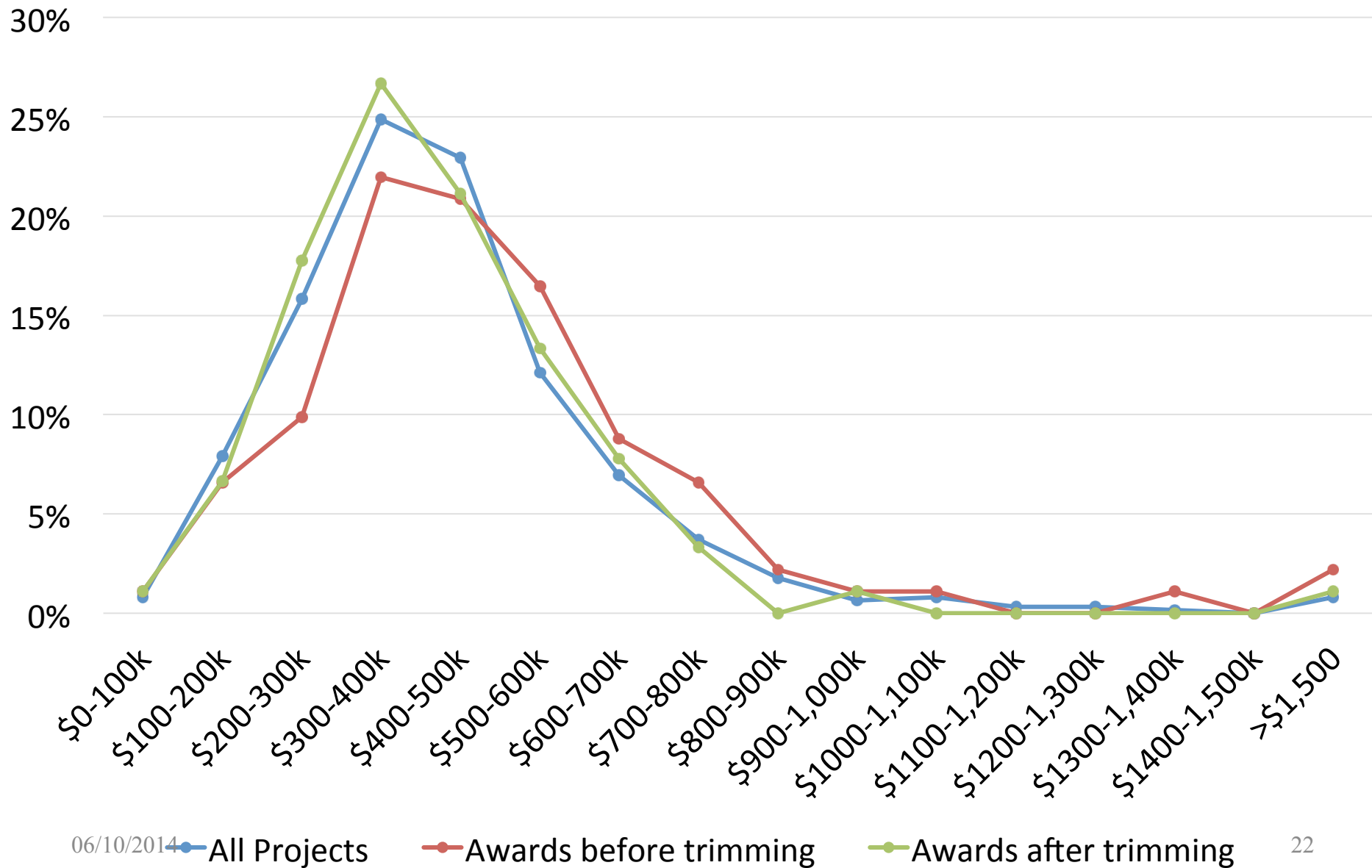
Increasing Proposal Cost



Average Dollars per award per year

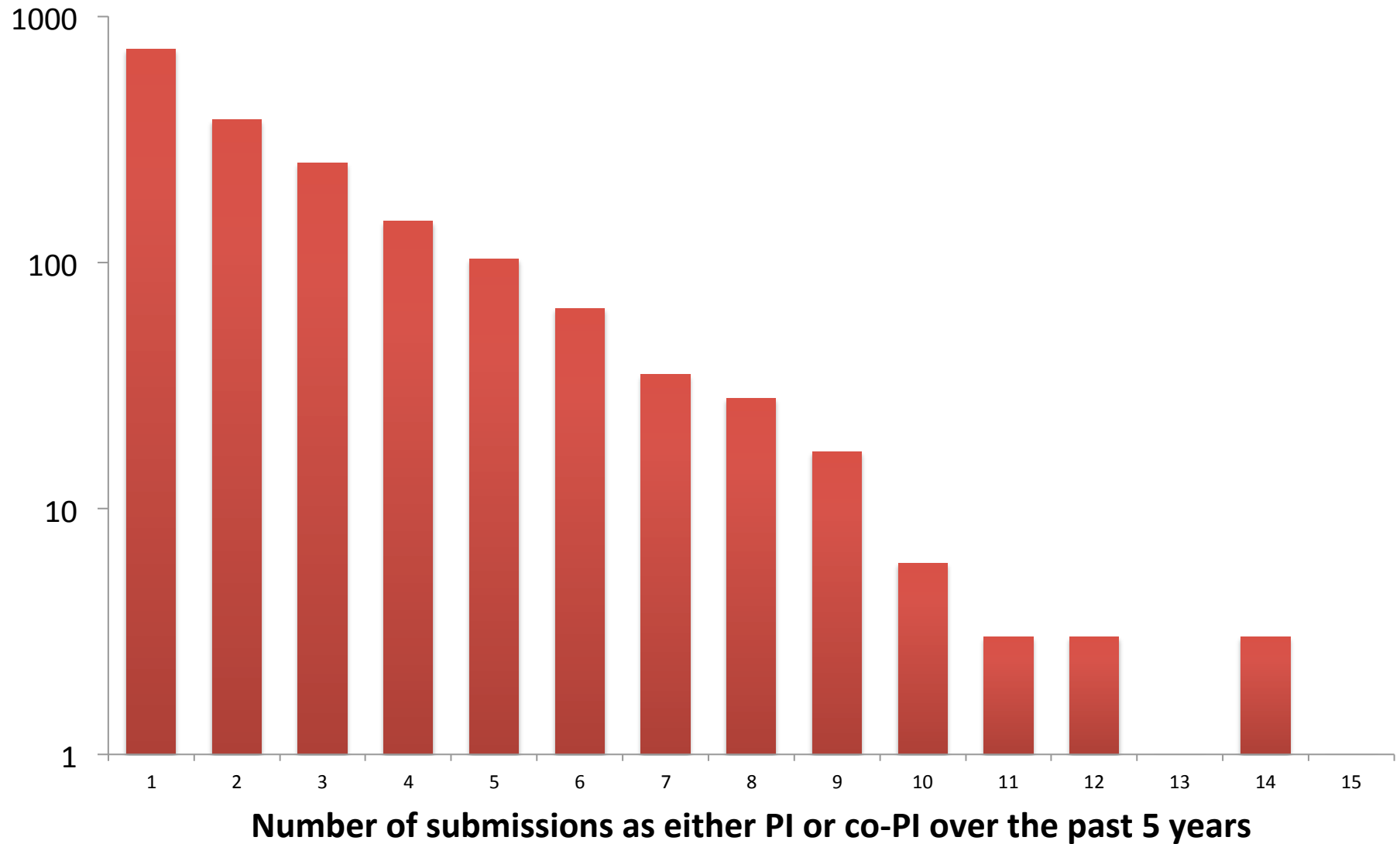


FY13 Project Cost



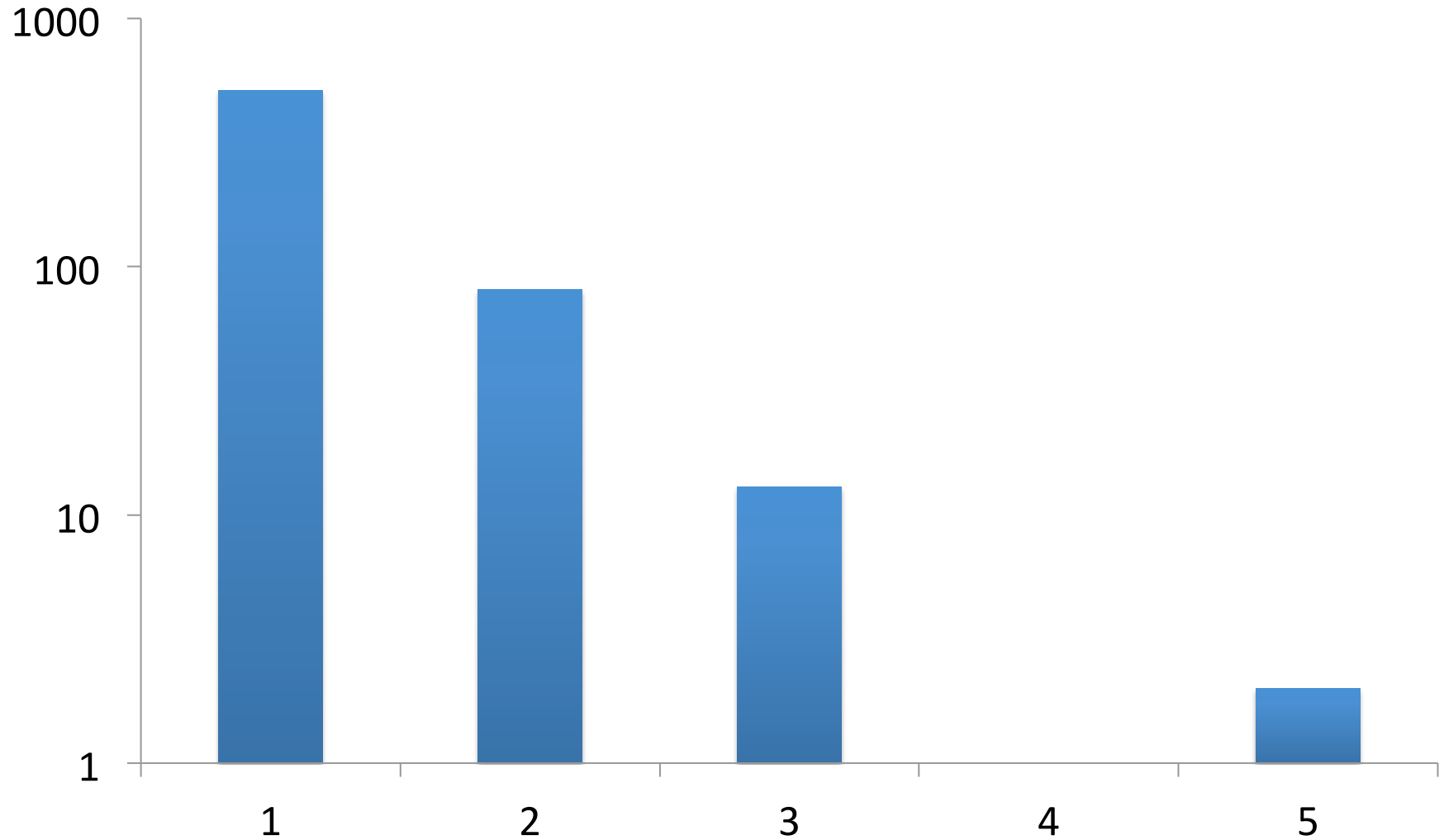


Multiple Submissions in 5 Yr





Multiple Submissions in FY14





AAG Now and Future

- FY13: 112/758 proposals = 15% funding rate
 - Desire >20% funding rate for best merit review
 - Reviewer load is quite high
- Number of FY14 proposals decreased ~3.5%, and AAG budget will likely decrease by similar amount
- Changes needed to achieve best review, reduce workload
 - Under consideration: reducing frequency of AAG calls, restricting numbers of proposals per investigator/institution
 - Strongly encouraging investigators to restrict themselves to 1 AAG proposal in FY 2015



Questions / Discussion